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ABSTRACT

A review of the literature was conducted to investigate how researchers have identified expert teachers. Each of the 29 studies used selection criteria that fell into one or more of the following market categories: (1) years of experience; (2) social recognition; (3) professional or social group membership; and (4) other performance-based criteria. The results of the literature review indicate variability in the selection criteria for identifying expert teachers. A rubric to determine teacher expertise is proposed that incorporates findings from this literature review. (Contains 1 table and 56 references.) (Author/SLD)

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Identifying Teacher Expertise:

An Examination of Researchers' Decision-Making

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Abstract

In this paper, we conducted a review of the literature in order to investigate how researchers have identified expert teachers. Each of the studies used selection criteria that fell under one or more of the following marker categories: 1) years of experience, 2) social recognition, 3) professional or social group membership, and 4) other performance based criteria. The results of the literature review indicated variability in the selection criteria for identifying exper6t teachers. A rubric to determine teacher expertise is purposed incorporating findings from this literature review.

Since the early 1980s educational stakeholders, including business leaders and politicians, have highlighted the need for educational reform to improve student achievement (Murphy, 1990). One of the outcomes of these reform efforts has been increased focus on teacher quality and on the evaluation of teachers (Dwyer & Stufflebeam, 1996). Recently, the American Council on Education (1999) concluded "...the single most important element in a child's success at learning- probably the element more important than all the others put together- is the quality of the teacher" (p. 1).

Process-product research during the 1970s and 1980s examined the impact of specific teacher behaviors on student performance (see Brophy & Good, 1986; Doyle, 1986). This research led to important insights about effective instructional practice that has, in turn, influenced both teacher preparation and the evaluation of teachers (Dwyer & Stufflebeam, 1996). One of the less noted outcomes of this line of research was the recognition that the use of effective instructional activities do not necessarily generalize across multiple contexts (Brophy & Good, 1986; Jones & Jones, 2001). Instructional practices effective for one group of students in one subject area will not necessarily be effective when teaching a different subject area to a different group of students. Effective teachers do not use a cookbook approach for the planning and delivery of instruction activities, rather they frequently modify their instructional activities depending upon their perceptions of ongoing classroom contextual factors (Brophy & Good, 1986; Shuell, 1996). Recognizing that teachers' cognitions affect planning and implementing effective instruction, educational researchers began to investigate how teachers think about teaching (Calderhead, 1996).

One approach to the study of teacher cognition and instructional effectiveness came from investigations on expert performance (Berliner, 1994). Researchers using this theoretical construct report that experts think and behave qualitatively different than do novices. Investigations have found that individual expertise is unique to a specific domain of activity and usually requires thousands of hours of dedicated practice within that domain (Berliner, 1994; Ericsson, 1996). Researchers also report that expert knowledge is structured differently than is that of novices and that experts are able to access their knowledge in an efficient, fluid manner in order to address novel problems (Berliner, 1994). These cognitive characteristics of experts are manifested across a broad range of domains including chess, physics, medicine, and sports (Ericsson, 1996). Although expertise in teaching may be considered by some an oxymoron (c.f. *Those Who Can, Do; Those Who Can't... Teach* — George Bernard Shaw, 1903), a number of studies over the last twenty years have explored expertise in teachers (e.g., Carter, Sabers, Cushing, Pinnegar, & Berliner, 1987; Leinhardt & Greeno, 1986; Peterson & Comeaux, 1987). Interestingly, little attention has been given to nature of the selection criteria used by investigators to identify expert teachers.

Expertise research across multiple domains outside of teaching reveals that researchers have used various identifying characteristics to select experts. These characteristics have included the following.

Experience and Deliberate Practice

The most common indicator associated with the development of expertise has been that of experience. Simon and Chase (1973) in their study of chess masters, found

that a minimum of ten years of preparation was necessary for individuals to obtain a level of chess skill associated with international competition. Ericsson, Krampe, and Tesch-Romer (1993) reported that it is not simply experience rather it is deliberate practice in a particular domain that is critical for the development of expertise. Deliberate practice is engagement in tasks at an appropriate level of difficulty with multiple opportunities for the repetition of the tasks, and informative feedback on performance on these tasks for the correction of errors (Ericsson et al., 1993).

A characteristic closely associated with deliberate practice of experts is the desire for mastery that they exhibit within their domain. Starkes, Deakin, Allard, Hodges, and Hayes (1996) reported in their study of athletic expertise that both ice skaters and their coaches identified motivation as one of the top characteristics associated with success in skating. Moreover, their interviews with coaches indicated that the highest performing athletes were individuals who not only had the will to win but had the "will to prepare to win" as a critical defining characteristic.

Social Recognition of Expertise

Agnew, Ford, and Hayes (1997) have argued that human expertise is, in part, a social attribution. Specifically, Agnew, etal, note:

> What do snake oil salesmen, TV evangelists, chicken sexers, small motor mechanics, geologists, radiologists, and computer scientists all have in common? They all meet the minimum criterion for expertise, namely they all have a constituency that perceives them to be experts (p. 219).

Similarly, LaFrance (1997) proposed a set of metaphors for expertise including "courtship", i.e., experts are chosen. Individuals selected as experts may not be the most knowledgeable but they are selected as experts because others believe they are. Patel, Kaufman, and Magder (1996) report that medical experts may be identified through a physician's board certification in a specialty area and social recognition of the specialized expertise. Similarly, expertise in physics has been defined through graduate training and degrees attained by individuals (Chi, Feltovich & Glaser, 1981).

Normative Performance Indicators

The study of expertise, to some extent, is an examination of the performance of those who perform better than the average in some domain of human activity. Individuals who consistently win in competitions against opponents are considered experts (Ericsson, 1996). For example, chess players identified as Grand Masters by the U. S. Chess Federation have acquired a specified number of points on the Elo (1986) scale, which is derived from outcomes of competitions between players (See Charness, Krampe & Mayr, 1996). Normative performance indicators are closely linked to social recognition indicators since the nature of the performance criteria and the comparison groups are determined from a social selection process (Agnew, et al., 1997).

Criterion-based Performance Indicators

Outstanding performance also can be determined in absolute terms and reflected in either the level of quality of the individual's work or can be based on performance on a criterion-based scale or under laboratory conditions (Ericsson, 1996; Sloboda, 1996; Winner, 1996). Reflecting on a domain, Sloboda (1996) reported that expert musicians'

performance characteristics reflect identifiable elements of fluency, accuracy and speed; however, he also noted that these musicians additionally display unique, expressive performance characteristics--qualities that require subjective evaluation of performance. This perspective is also reflected by Winner (1996) who notes that experts in the visual arts are both skilled and invent new ways of thinking, seeing and problem solving that are qualitatively different from non-experts.

The purpose of this paper is to conduct a comprehensive review of investigations on expert classroom teachers and to identify indicators for selecting expert teachers. We wished to identify existing patterns used across studies on teaching expertise and to develop recommendations for identifying "teacher expertise." Bell and Hertz (1976) defined a marker variable as a variable that is related to the measures used in most studies in a defined research area to facilitate the general alignment of findings across studies. Without identification and consistent application of markers when selecting a sample, it is unclear what, or for that matter who, is being studied. Reviewing research with identified "expert" teachers, we will describe the most commonly described markers used to identify teacher expertise and discuss the implications of the use of these selection procedures upon the results obtained in research on expert teachers.

Method

There were two components to the conduct of this study: identification of the population of studies on teacher expertise and derivation of decision rules to categorize markers used to identify expert teachers.

Identification of Research Studies

The researchers engaged in a multi-stage process to identify studies for inclusion. The first stage involved a search of electronic databases including ERIC, Education Abstracts and Ovid Psychinfo. The ERIC (1966-1999) data base was searched using the following key phrases: "novice teacher," "expert teacher," "novice and expert" and "beginning teacher." Additional ERIC and Education Abstracts searches were then conducted using the subjects "expert," "expertise," and "teacher" for the years 1995 to 2000 to ensure that relevant articles had not been missed. We also conducted an Ovid PsycInfo Search (1967-1999) using the key phrases "reflective teaching," "teacher reflection," "novice," "expert," "expert teacher education," "novice and teacher," "teacher training," "expert teachers," and "expert and teacher." We followed these searches with another PsycInfo search using the following descriptors: "expert cognitive processes," "expert competence," "expert knowledge level," "expert competence," "teacher or educator," "teacher and educator," "performance assessment," and "professional expertise". Eight months after the first electronic search was completed, a final ERIC electronic search was conducted using the following descriptors: "expert teachers," "expert," and "teaching". These searches together generated 258 references.

From this pool, redundant references were dropped and only those papers published in peer-reviewed English language journals that contained original research data were retained. Hard copies of the papers were made and the authors individually reviewed each of the papers for inclusion. Since the researchers were primarily interested in identifying markers for expert teachers of school-aged children (kindergarten to 12th grade), we limited the studies to this population.

Although our searches had resulted in a large number of articles that seemed to focus on teacher expertise, we found that many of these studies used the term "expertise" but not the cognitive construct as has been described and developed by cognitive scientists (e.g., Simon & Chase, 1973; Glaser & Chi, 1988) or educational researchers such as Berliner (1986), Leinhardt (1983) and Livingston and Borko (1990). In other studies, the teaching expertise literature was reviewed in the introduction but the researchers chose to use terms such as "experienced" (e.g., Housner & Griffey, 1985) rather than expert. Thus, to ensure our focus on the cognitive construct of expertise, we limited our sample to those studies that both used the construct of teaching expertise and explicitly labeled the teachers within their study as "experts."

We also found that some researchers (e.g., Livingston & Borko, 1989, 1990; Borko & Livingston, 1990) used either the same sample or a subset of the same sample in more than one study. In these cases, either the earliest study or the study with the most explicit description of the sample selection process was included in our selected articles.

The researchers subsequently conducted a final review of the reference lists of the remaining studies to locate relevant additional studies. Following these procedures, 29 studies were identified and are listed in Table 1.

Decision Rules to Categorize Identification Markers

Our review of research on the construct of "expertise" across disciplines revealed a number of markers used to identify experts. This review provided guidance in initial decision-making in the identification and selection of expert teachers. We then engaged in an iterative process in which we individually reviewed a sample of 12 articles with identified "expert" teachers and then met to discuss criteria used in these studies. From this sample, several initial categories of selection criteria emerged: (a) years of experience, (b) social recognition/nomination, (c) professional/social group membership, and (d) other. Following discussion among all of the researchers, the "Other" category was further refined to "Other Performance Category" and included the differentiation of "Normative" and Criterion-Based" performance criteria.

"Normative" criteria required a comparison to other potential participants, i.e., experts were chosen on the basis of how well they performed on a specific task as compared to peers or novices. Examples of this criteria included "talkative" teachers chosen by principals for participating in stimulated recall activities (e.g., Allen & Casbergue, 1997), observation of classroom teaching by independent experts (e.g., Bromme & Steinbring, 1994).

Another type of performance-based criteria were those that were "criterion-based" in that the teacher's performance was rated against a predetermined standard. Examples included teachers who received the highest possible rating by three different student teacher supervisors on given criteria (e.g., Copeland, Birmingham, DeMeulle, D'Emidio-Caston, & Natal, 1994) and teaching performance appraisals and measures of student achievement (Livingston & Borko, 1990).

In the process of examining these studies, it was evident that the order in which researchers used these criteria varied. This variation resulted in the differential screening of the teachers that were chosen as experts in a given study. In order to reflect the variability of the order in which these selection criteria were applied, we noted the sequence in which these criteria were mentioned in the article. In some cases, it appeared

that these criteria were applied concurrently and in many cases this order was unclear. In these cases, we ranked all the criteria equally.

Results

A summary chart of marker variables used to identify teacher expertise by researchers in 29 selected studies is presented in Table 1. Summarized information on the selection criteria used in each of the studies is presented under one or more of the four marker categories: 1) years of experience, 2) social recognition or nomination, 3) professional or social group membership, and 4) other performance-based criteria. The order in which these markers were used in selecting the expert teacher sample also is identified for each study.

In 17 of the 29 studies presented in Table 1, "years of experience" was a marker used to select the teachers in this study. In 13 of these same studies, the specific number of years of experience were indicated, and this number ranged from 2 to 20 years, with most studies requiring that the number of years of experience range from 5 and 10 years. Two studies constrained the type of experience in which the teaching experience took place. Moallem (1998) required seven or more years of teaching experience and further required that three of these years were required to be in the same instructional context. Webb, Diana, Luft, Brooks, & Brennan (1997) stipulated that the required five or more years of teaching experience be consecutive. Three studies used "extensive experience in elementary teaching" (Copeland, et al., 1994); "considerable teaching experience" (Leinhardt, 1983); and "experienced high school teachers" (Peterson & Comeaux, 1987) to refer to amount of experience. In most cases, the number of years of teaching experience was information gathered after these teachers were selected as part of the sample, rather than having been used as a selection criteria. In some of these same studies, while years of experience was not directly used as a selection criteria, experience of the participants was suggested in the description of the sample.

Social recognition or nomination was reported as having been used in 18 of the 29 studies. In Ethell & McMenimen (2000), teachers were nominated solely by teacher educators. For 17 of the 18 studies using social recognition, this selection criterion was used concurrently with other markers.

A third variable used for selection was that of professional or social group membership. Thirteen of the studies used some type of group membership indicator; in most cases, teacher certification, in order to select the sample. Other studies used membership in an educational organization, status as a cooperating or mentor teacher, having tenure, holding an advanced university degree, "taught at a prestigious music school," or "enrolled in a teacher education class" as criteria. The criteria was not used as a sole selection criterion in any of the studies reviewed.

In 17 of the 29 studies, a performance criteria also was used as a criteria in selecting a sample. The studies used either normative (5 studies), criterion-based (10 studies), or a mixture of the two (2 studies). In the studies that used a normative measure, teachers were compared to their peers using 1) general comparisons such as "talkative" or "practical and theoretical knowledge about curriculum and organization," 2) researcher observation and screening, including multiple ratings by the researchers, and 3) general criteria, such as "based on Berliner's (1986) criteria." In studies that used criterion-based measures, teachers were selected on absolute scales such as "the North Carolina Teacher

Appraisal Instrument," and "independently rated as 'superior teacher' by three different student teaching supervisors."

Of all 29 articles examined, only Swanson, O'Connor, and Cooney (1990) and Solmon & Lee (1991) selected expert teachers using all four types of identification markers.

Within the 29 studies reviewed, 22 used multiple indicators to select expert teachers. In these 22 studies, 15 used gating screening procedures. The first gate in the selection process varied across studies, eg., years of experience (2 studies), social recognition (5 studies), professional/social group membership (6 studies), performance criteria (1 study), and sequential multiple criteria (1 study). Interestingly, of the 22 studies using multiple indicators, seven appeared to use the indicators simultaneously, not as a serial gating procedure.

Discussion

Our review of the population of published research articles with identified expert teachers reveals significant variability in the selection criteria used by investigators to identify expert teachers. As noted by Light and Pillemer (1984), variability in operational definitions of variables under investigation severely limits researchers' ability to generalize about the population from a given sample. Moreover, with variability in decision rules to select these samples of expert teachers, the systematic development of our knowledge base concerning the nature of teaching expertise is limited.

Reflecting both on the selection criteria used to identify teaching expertise as well as research on other domains of expertise, we are proposing the following rubrics in the selection of expert teachers:

1) Five years of teaching experience is a necessary but not sufficient condition for the development of expertise. Assuming that teachers work 7 hours per day for approximately 185 days per year, a 5 year period reflects approximately 6,500 hours of "practice". This level of practice is consistent with that used in other fields as a minimum level of practice required to establish expertise (see Ericsson et al., 1993). It is also necessary to identify the type of teaching experience needed to foster the development of expertise. As noted by Berliner (1994), expert teachers are not experts in all content domains, for all age groups, or with students with a wide range of instructional needs--expertise context--is bound. Therefore, we propose that teaching experience should include consideration of the type as well as the time of the experience. We propose that at least three of a teacher's most recent years of experience (approximately 4,000 hours of experience) be in the same instructional context in which the teacher is being identified as an expert.
2) Social nomination and recognition is a necessary condition for determining expertise. Expert teachers can and should be selected through a rigorous nomination process. Moreover, a confirmatory nomination/recognition process whereby two or more different constituencies independently recognize a teacher's expertise is suggested. This recognition might be based primarily on evidence of teaching effectiveness through student performance, but may also be reflected in acknowledgement of process indicators of quality teaching. This recommendation reflects, in part, the social context of the identification of expertise, i.e., expertise is identified by others who recognize the extraordinary skills and outcomes of the nominated teacher.

These two markers are seen as a dual "gating" screening procedure in which both conditions must be met for identification of teaching expertise.

Additional supporting information on student performance is recommended for nominated teachers. However, due to the variability of student populations and their instructional needs that may range from functional life skills curricula for students with severe disabilities to advance placement calculus curricula for college-bound high school students, establishing specific standards for student performance is technically difficult. It is of interest to note that one of the least informative and highly variable indicators used in these studies was professional/group membership. Although appropriate teacher certification is clearly seen as a necessary condition, neither certification nor advanced degrees provide important screening information for selection of expert teachers.

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Study	Years of Experience	Social Recognition/Nomination	Profession Social Gro Membersh
Allen & Casbergue (1997)	(2) 10+	(2) nomination by principal	(1) cooper teacher wi university
Bartelheim & Evans (1993)	(2) 5+ in resource room	(1) school principal and district special education office	(2) certifie resource sp ed. teacher
Bromme & Steinbring (1994)			
Bullough & Baughman (1995)*	(1) 6		
Campbell (1990)	(1) 10+ with current school and district	(2) identified as expert teachers by building principals based on (a) principal classroom observations, (b) student surveys, and (c) general reputation as a teacher	
Carter, Sabers, Cushing, Pinnegar, & Berliner (1987)*	(3) 5+	(1) school superintendent and/or principals	

al/ up ip	Other Performance Criteria (N=Normative; C=Criterion-Based)
ating th local	
d as pecial	
	(1) N=One expert teacher was chosen from a sample of 26 math teachers on the basis of classroom observations measuring instructional quality: (a) student engagement (by recording number of off-task student behaviors); (b) control of instructional flow; (e) clarity of teacher statements; (d) clarity of blackboard and overhead presentations; (e) teacher's enthusiasm;(f) teacher's "with-it-ness"
	(2) authors state that case study teacher exhibited many of the qualities outlined in Berliner (1988)
	(2) N=Eighteen experts were selected out of the nominated group of 54 by project personnel, all of whom were knowledgeable about research on teaching and who either had classroom teaching experience or were trained in classroom observation techniques. Each nominated teacher was observed by three or more researchers, who selected those teachers whose teaching performance "set them apart" from their peers. If experts were not unanimous in their rating, teacher was not selected.

Study	Years of Experience	Social Recognition/Nomination	Professional Social Grou Membership
Cleary & Groer (1994)		(1) identified by principals in their building and by personnel from the university skilled in methods of observation	(2) cooperat teacher
Copeland, Birmingham, DeMeulle, D'Emidio-Caston, & Natal (1994)	(1) "extensive experience in elementary teaching (Mean=20 years; SD=4.6)"		(2) selected consistently serve as cooperating teachers
Ethell & McMeniman (2000)		(1) "an experienced secondary school teacher was nominated by teacher educators"	
Fitzgerald (1998)	(2) 2+ years		(1) doctoral students enr in special education (2) preparat two or more certification
Gholson (1998)			

	Other Performance Criteria (N=Normative; C=Criterion-Based)
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ting	
to	(1) C="taught at least three different grade levels." (2) C="were the only Cooperating Teachers independently rated as Superior Teachers, the highest rating possible, by 3 different UCSB student teaching supervisors."
olled ion in areas	
	C="met criteria for the study of expertise in teaching as established by Berliner (1986): (a) media recognition, (b) taught at prestigious music education schools, (c) several former students of this teacher became world-renowned musicians (Itzhak Perlman, Nadja Salerno-Sonnenberg)

Study	Years of Experience	Social Recognition/Nomination	Professio Social G Member
Leinhardt (1983)	(2) "considerable experience teaching"		(1) coop teachers
Leinhardt (1993)	(1) 20+ years	(1) "considered an expert based on multiple sources" including: (a) the teacher most frequently cited by former students (b) strong reuputation with colleagues and administration	
Leinhardt & Greeno (1986)			
Leinhardt, Weidman & Hammond (1987)			
Livingston & Borko (1990)		(2) building principal and county teacher center coordinator (who was also a faculty member)	(1) coop teachers

onal/ roup ship	Other Performance Criteria (N=Normative; C=Criterion-Based)
erating	(2) N="best of these teachers" (3) Expertise defined in part by: (a) growth of the students (b) skill in bringing students into contact with appropriate subject matter (high levels of academic engaged time)"
	(1) N=knowledge and love of subject, U.S. history. Read history and historical analysis voraciously.
	(1) N=experts identified by reviewing growth scores of students over a 5-year period and selecting the classrooms that appeared within the highest 15% of each grade. Classrooms in which the achievement was in the highest 20% were chosen from among the high-growth classes.
	(1) C=teachers' were identified by examining student achievement growth scores over a five year period. These scores were consistently in the top 20% of the school district's distribution
erating	(3) C=expert teachers were identified on the basis of teaching performance and student achievement by principal

Study	Years of Experience	Social Recognition/Nomination	Professio Social Gr Members
Moallem (1998)	(1) 7+ (with 3 or more years in present context)	(1) "a good reputation among colleagues and students" (1) excellent regard by the principal	
Peterson & Comeaux (1987)	(1) "10 experienced high school social studies teachers"		
Rich (1993)	(1) 4+ years of classroom experience	(2) "highly regarded by principals and colleagues" (Bents & Bents, 1990)	
Schempp, Manross, Tan, & Fincher (1998)			(1) physic educators public mi school
Silberstein & Tamir (1991)		(1) recognized by principal, supervisor, parents, and colleagues	

nal/ oup hip	Other Performance Criteria (N=Normative; C=Criterion-Based)
	(1) C=undergraduate degree in subject matter and graduate degree in subject matter or education (1) C=no record of serious management or discipline problems in the classroom (1) N=knowledge about curriculum and organization (1) N=evaluation showing competency as a teacher through classroom observations
	(2) C=used Bents & Bents (1990) criteria: (a) expressed confidence in their teaching ability (b) facilitated good progress in student achievement
cal in ddle	(1) C=teachers were "within reasonable proximity to the investigators." (1) C=teachers "had to believe that they had expertise in at least one physical education subject area."
	(2) N=(a) teacher's pedagogical knowledge must be highly contextual; (b) content domain of outweighs other factors; (c) able to establish routines and classroom management procedures that allow her to match tasks with attainments; (d) Schulman's (1986) assertion of teacher expertise; (e) Berliner's (1986) criteria. (3) C=(a) students' of teacher used in the case study taught students that consistently performed highly on standardized reading tests.

Study	Years of Experience	Social Recognition/Nomination	Professio Social G Member
Solmon & Lee (1991)	(1) "experi-ened"	(1) recommended by the district supervisor	(1) Mast degrees certificat adapted educatio
Standley & Madsen (1991)	(1) 10+ years	(1) recognition from colleagues as outstanding teachers (formal commendations and awards)	(1) degr music ed
Strahan (1989)		(1) instructional supervisors were asked to identify more and less expert teachers	(2) all p were en teacher class (7 teaching experien without)
Swanson, O'Connor, & Cooney (1990)	(2) "approxi-mately ten or more years"	(2) designated as outstanding teachers by their principals	(1) ment novice s teachers (2) com Master's

onal/ roup ship	Other Performance Criteria (N=Normative; C=Criterion-Based)
er's and state tion in physical n	(1) C="teachers with successful evaluations" (2) "samples of assessment reports, goals and objectives, and daily lesson plans written by prospective subjects were examined for clarity, content, and knowledge displayed." (3) Based on selection factors (1) and (2) teachers were observed during interactive teaching for "ability to use class time efficiently, to structure the enrinoment for learning, and to address individual students needs."
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articipants rolled in a education with nce and 7 .	
tors for tudent pleted a s degree	(2) C=selected as "mentor teacher" within the California Public School System.

Study	Years of Experience	Social Recognition/Nomination	Professiona Social Grou Membershi
Tochon & Munby (1993)	(2) 7+ years of teaching	(1) district administrators were asked to recommend 5-10 language arts teachers that they considered to be "the most experienced at the junior high level." They were also asked to record the criteria they used to select the recommended teachers. Items 2 - 5 emerged as "filters" used for selection	(2) M.A. w major in La Arts (2) High Sc Educationa Studies deg (teaching d (2) state nomination tenure
Vogler, van der Mars, Cusimano, & Darst (1992)			
Webb, Diana, Luft, Brooks, & Brennan (1997)	(1) 5+ consecutive years of recent teaching experience	(1) experts were identified by principals, assistant principals, or staff development personnel in consultation with the first and second authors.	

	Other Performance Criteria (N=Normative; C=Criterion-Based)
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ith a nguage :hool l ree egree) with	
	(1) C= "based on criteria suggested in part by Berliner (1986)" and met at least four of the following five criteria: (a) selected as state's physical education teacher of the year. (b) served as school district physical education master teacher/mentor. (c) served as state officers in a physical education professional organization. (d) presented papers at state, regional, and national conferences/inservices. (e) had exemplary principal ratings/evaluations.
	(1) C=Berliner's (1986, 1988) criteria for teacher expertise level were used: (a) teachers demonstrated an effortless, fluid performance of the highest quality, and (b) often confronted and solved problems in a deliberate and analytic fashion appropriate to those problems. (2) N=candidates were screened again by 1st and 2nd authors to select 10 teachers who best matched the criteria used.

Study	Years of Experience	Social Recognition/Nomination	Profess Social Membe
Westerman (1991)		(2) "selected by administrators and by university personnel skilled in observational methods..."	

ional/ Group ership	Other Performance Criteria (N=Normative; C=Criterion-Based)
	(1) N=expert observers examined teachers for the following: (a) integrated curriculum; (b) able to promote reflection in student teachers; (e) willing to spend time developing a problem solving orientation toward teaching; (d) consistently used strategies they wanted student teachers to follow, (e) followed university's instructional philosophy.